# LIST OF CONTENTS

W. J. Liou, C. I. Tseng and L. P. Chao	1	Stress analysis of laminated E-glass epoxy composite plates subject to impact dynamic loading
R. P. Tetambe and C. Rajakumar	13	Estimation of error in finite element acoustic analysis
S. Reaz Ahmed, A. B. M. Idris and Md. Wahhaj Uddin	21	Numerical solution of both ends fixed deep beams
D. Givoli and I. Doukhovni	31	Finite element-quadratic programming approach for contact problems with geometrical nonlinearity
K. El-Sawy and I. D. Moore	43	A two-level iterative FEM technique for rigorous solution of non-linear interaction problems under large deformations
S. Dumont and F. Lebon	55	Wavelet-Galerkin method for periodic heterogeneous media
M. Yasar Kaltakcı	67	Stress concentrations and failure criteria in anisotropic plates with circular holes subjected to tension or compression
P. Sundaresan, G. Singh and G. Venkateswara Rao	79	Buckling and post-buckling analysis of moderately thick laminated rectangular plates
R. Cerioni and L. Mingardi	87	Nonlinear analysis of reinforced concrete foundation plates
O. F. Hughes and M. Ma	107	Inelastic analysis of panel collapse by stiffener buckling
M. Ap. Tzaferopoulos	119	On the numerical modelling of convex particle assemblies
H. H. Vaziri	131	Theory and application of a fully coupled thermo- hydro-mechanical finite element model
M. H. Iman and M. Al-Shihri	147	Optimum topology of structural supports
S. Wang and D. J. Dawe	155	Finite strip large deflection and post-overall-buckling analysis of diaphragm-supported plate structures
F. Giambanco and L. Palizzolo	171	Computation of bounds on chosen measures of real plastic deformation for beams
Ai-Kah Soh, Chee-Kiong Soh and Kay-Hiang Hoon	183	Development of a simplified plate element for large deflection elasto-plastic finite element analysis

#### Contents

D. Satish Kumar, C. Sujatha and N. Ganesan	189	Technical Notes  A modified semi-analytical approach towards the modelling of a shaft-disc system
B. B. Budkowska and C. Szymczak	193	Partially embedded piles subjected to critical buckling load—sensitivity analysis
		NUMBER 2
H. P. Lee	197	Thermal stress analyses of a waste storage container
Tulong Zhu and Chao Zhang	225	Identical probability distribution of first-ply failure strains and design allowables computation based on multi-sample data of composite laminates
S. Dhar, N. S. Brar, D. J. Grove and J. E. Saliba	231	A hypervelocity model for the forces produced in a thick target by the penetration of projectile
G. D. Pollock and A. K. Noor	251	Sensitivity analysis of the contact/impact response of composite structures
Q. H. Qin	271	Nonlinear analysis of thick plates by HT FE approach
Maenghyo Cho and Jun-Sik Kim	283	Four-noded finite element post-process method using a displacement field of higher-order laminated composite plate theory
S. Rajasekaran, M. F. Febin and J. V. Ramasamy	291	Artificial fuzzy neural networks in civil engineering
G. M. Cocchi	303	The finite strip method in the analysis of thin plate structures with various edge restraints
R. A. Naqib, A. Zureick and K. M. Will	315	Practical considerations in two-dimensional shape optimization of elastic continuum
A. C. A. Ramsay and E. A. W. Maunder	331	Effective error estimation from continuous, boundary admissible estimated stress fields
M. M. El-Hawary, A. M. Ragab, K. M. Osman and M. M. Abd El-Razak	345	Behavior investigation of concrete slabs subjected to high temperatures
M. Ali Ajiz and M. Mustafa Hamed	361	Manzur and Hamed (M-H) algorithm for resequen- cing nodes in the undirected graphs to minimize the storage by reducing the bandwidth of sparse symmetric matrices
Young-Shin Lee and Myung-Seog Yang	375	Behaviour of antisymmetric angle-ply laminated plates using the affine transformation
Gaofeng Wu and A. D. Crocombe	385	Technical Note Simplified finite element modelling of structural adhesive joints

		TO THE SERVICE OF THE
N. Yardımcı, C. Yorgun and T. S. Arda	393	Tests on beam-column strong and weak axis connections
Young-Sun Choun and Chung-Bang Yun	401	Sloshing characteristics in rectangular tanks with a submerged block
J. E. Saliba	415	Use of finite element in micromechanics of natural composites
S. Yang and I. Lee	421	Aeroelastic analysis for flap of airfoil in transonic flow
I. Takewaki	431	Design-oriented approximate bound of inelastic responses of a structure under seismic loading
T. Mizusawa	441	Vibration of thick laminated cylindrical panels by the spline strip method
M. Ghosn, J. R. Casas and Jian Ming Xu	459	Development of an efficient program for the nonlinear analysis of bridges
G. Subramanian, A. Prasanth and V. V. S. Raveendra	471	An algorithm for two- and three-dimensional automatic structured mesh generation
G. M. Cocchi and M. Volpi	479	Inelastic analysis of reinforced concrete beams subjected to combined torsion, flexural and axial loads
J. Shi, J. T. Boyle, D. Mackenzie and R. Hamilton	495	Approximate limit design of frames using elastic analysis
XA. Kong	503	A data design approach for object-oriented FEM programs
G. Baker	515	Exact deflections in nonprismatic members
E. Saether	529	An explicit plane quadrilateral element for nonlinear material analysis
B. Q. Miao, X. X. Hu and L. S. Xu	539	Recursive response analysis of structures subjected to nonwhite random excitation
H. Adeli and Wei-Ming Kao	545	Object-oriented blackboard models for integrated design of steel structures
M. Rezaiee-Pajand and M. R. Salary	563	Two-dimensional sensitivity analysis
Young-Shin Lee and Young-Wann Kim	573	Analysis of nonlinear vibration of hybrid composite plates
Wang Xiaotong	579	The IDS model of intelligent design system

## Contents

Boo Youn Lee	587	Consideration of body forces in axisymmetric design sensitivity analysis using the BEM
S. N. Patnaik, A. S. Gendy, D. A. Hopkins and L. Berke	597	Weight minimization of flight components
A. Rosen, M. Sabag and D. Givoli	617	A general nonlinear structural model of a multirod (multibeam) system—I. Theoretical derivations
M. Sabag and A. Rosen	633	A general nonlinear structural model of a multirod (multibeam) system—II. Results
D. Tranxuan	645	Optimum fillet radius for a latch
H. P. Lee	651	Motions with minimal base reactions for redundant manipulators
A. Jutila and A. Tesar	657	Non-linear damping of slender wood bridges
K. Ray and R. C. Kar	665	Parametric instability of a dual-cored sandwich beam
K. T. Danielson, A. K. Noor and J. S. Green	673	Computational strategies for tire modeling and analysis
CH. Lu, R. M. Evan-Iwanowski and HY. Jia	695	On the stabilization of nonstationary parametric main resonance of a laminated angle-ply column
Wanmin Han and M. Petyt	705	Linear vibration analysis of laminated rectangular plates using the hierarchical finite element method—I. Free vibration analysis
Wanmin Han and M. Petyt	713	Linear vibration analysis of laminated rectangular plates using the hierarchical finite element method—II. Forced vibration analysis
Shang-Sheng Wu, Chia-Lin Shiu and Wen-Jyi Wu	725	Analysis on transient heat transfer in annular fins of various shapes with their bases subjected to a heat flux varying as a sinusoidal time function
J. S. Lee, G. N. Pande, J. Middleton and B. Kralj	735	Numerical modelling of brick masonry panels subject to lateral loadings
D. B. Stephen and G. P. Steven	747	Error estimation for plate buckling elements
C. T. Dyka, R. P. Ingel and L. D. Flippen	763	A new approach to dynamic condensation for FEM
G. Urriolagoitia-Calderon and L. H. Hernandez-Gomez	775	Evaluation of crack propagation stability with the Williams stress function—I. Stress field analysis

Hae Chang Gea	781	Topology optimization: a new microstructure-based design domain method
H. Takabatake, K. Kajiwara and R. Takesako	789	A simplified analysis of circular cellular plates
S. K. Singh, S. K. Nath, A. Pani and S. Sengupta	805	Forward modelling in cross-hole seismic tomography using reciprocity
T. Mizusawa and H. Ushijima	819	Vibration of annular sector Mindlin plates with intermediate arc supports by the spline strip method
T. Krauthammer and C. K. Ku	831	A hybrid computational approach for the analysis of blast resistant connections
G. P. Dube and P. C. Dumir	845	Tapered thin open section beams on elastic foundation—I. Buckling analysis
G. P. Dube and P. C. Dumir	859	Tapered thin open section beams on elastic foundation—II. Vibration analysis
P. D. Gosling and W. J. Lewis	871	Optimal structural membranes—I. Formulation of a curved quadrilateral element for surface definition
P. D. Gosling and W. J. Lewis	885	Optimal structural membranes—II. Form-finding of prestressed membranes using a curved quadrilateral finite element for surface definition
Yuren Hu, Xianding Jin and Bozhen Chen	897	A finite element model for static and dynamic analysis of thin-walled beams with asymmetric cross-sections
M. B. Wong	909	Effects of linearly varying distributed load on the collapse behaviour of frames
Y. Y. Tang, A. K. Noor and K. Xu	915	Assessment of computational models for thermo- electroelastic multilayered plates
J. Rhee and R. E. Rowlands	935	Stresses around extremely large or interacting multiple holes in orthotropic composites
B. Sudhakara Rao, A. S. Sekhar and B. C. Majumdar	951	Analysis of rotors considering distributed bearing stiffness and damping
G. G. Yen	957	Distributive vibration control in flexible multibody dynamics
H. I. Epstein and R. Chamarajanagar	967	Finite element studies for correlation with block shear tests

#### Contents

S. Ahmad	975	Stochastic TLP response under long crested random sea
T. Yokoyama	995	Vibration analysis of Timoshenko beam-columns on two-parameter elastic foundations
R. Cortell	1009	Numerical analysis of dynamic problems with negative stiffness
Chong-Shien Tsai	1013	FEM considering local bending effects for flat sliding isolators
G. Jacquet-Richardet and C. Dal-Ferro	1025	Reduction method for finite element dynamic analysis of submerged turbomachinery wheels
M. M. Attard, N. G. Minh and S. J. Foster	1037	Finite element analysis of out-of-plane buckling of reinforced concrete walls
A. Ali	1043	FEM analysis of concrete structures subjected to mode-I and mixed-mode loading conditions
R. Ruotolo, C. Surace, P. Crespo and D. Storer	1057	Harmonic analysis of the vibrations of a cantilevered beam with a closing crack
Kuang-Yuan Kung, Cheng-Hsing Hsu and Jong-Jhy Jou	1075	Boundary effect on the Benard-Marangoni instability in a fluid-solid system
S. Kapuria, P. C. Dumir and S. Sengupta	1085	Exact piezothermoelastic axisymmetric solution of a finite transversely isotropic cylindrical shell
A. Ibrahimbegović, H. Shakourzadeh, JL. Batoz, M. Al Mikdad and Ying-Qiao Guo	1101	On the role of geometrically exact and second-order theories in buckling and post-buckling analysis of three-dimensional beam structures
I. E. Harik and X. J. Zheng	1115	FE-FD model for magneto-elastic buckling of ferro- magnetic plates
R. Younsi, C. Knopf-Lenoir and A. Selman	1125	Multi-mesh and adaptivity in 3D shape optimization
T. J. Bond, L. Y. Li, P. Bettess, J. W. Bull and I. Applegarth	1135	Adaptive mesh refinement for shells with modified Ahmad elements
R. L. Hsia and R. S. Chaudhuri	1143	Geometrically nonlinear analysis of cylindrical shells using surface-parallel quadratic elements
Chang-Koon Choi and Gi Taek Chung	1155	A gap element for three-dimensional elasto-plastic contact problems
C. Leppin and P. Wriggers	1169	Numerical simulation of rapid crack propagation in viscoplastic materials

B. A. Ovunc and T. Ren	1177	Nonlinearities in the analysis of frames
Lu Jingui, Ding Yunliang, Wu Bin and Xiao Shide	1185	An improved strategy for GAs in structural optimization
N. Kishi, W. F. Chen, Y. Goto and R. Hasan	1193	Behavior of tall buildings with mixed use of rigid and semi-rigid connections
C. Kalliontzis, E. Andrianis, K. Spyropoulos and S. Doikas	1207	Finite element stress analysis of unilaterally supported submarine pipelines

i List of Contents and Author Index for Volume 61, 1996